

MARK-UPS

Specification Mark-Ups:

Paragraph beginning at page 23, line number 17

FIG. 3 is a depiction of a golf course mapping process. In this depiction, as an example of a golf course feature to map, a user **25** walks the perimeter **26** of green **27** to construct a vector image display 28 of the actual green **27** in real time on the display 28 of the display module **1A**. It should be understood that the following procedure is also used on bunkers, water hazards, fairways, tee boxes and other golf course features. When the software mapping process is started, the current location (Latitude and Longitude (Lat/Lon)) of the receiver **52** is logged as a new vertex **29** in the RAM of the display module **1A**. The vertex **29** is also displayed on the display-module **28** at the same moment it is logged. Following that, locations or vertexes are logged approximately once per step or pace of the user at a pre-determined time interval (each second is operable).

Paragraph beginning at page 24, line number 11

The GPS mapping software of the present invention provides the user the ability to move errant vertexes **35** into a position on the display that more correctly represent the perimeter of the course attribute being mapped. This is an opportune time and place to make corrections to the data since the user has just traversed the object and knows its approximate shape. On the display **28** of the Display Module **1A**, as a stylus is touched to a vertex **29** and it is dragged to a location that better defines the shape that was just mapped, the attached rays **30** follow. When the stylus is removed from the Display Module **1A**, the new vertex location **35A** is logged in place of the old one.

Paragraph beginning at page 24, line number 19

To help the user know which vertexes may be errant, each vertex box or dot may be a specific shape or color to represent a confidence level in its respective accuracy. Errant vertexes 35 as depicted in **FIG. 3** are sometimes readily identified as not matching the contour of the feature just mapped on the golf course. However, other times it is not clear to the user which vertex needs to be moved.

Paragraph beginning at page 24, line number 24

To aid in this decision, a display module **1A** with a color display **28** (depicted in Fig. 1) would display each vertex block or dot **29** with an assigned color indicating the quality of the position information at that vertex. The indicator may be black, green, yellow or red. The color could be based on real time values for differential correction quality, number of satellites tracked and HDOP. However, the color could also be determined by relative differential correction quality, number of satellites tracked and HDOP. In other words, immediately upon completing the mapping of the perimeter **26** of the green **27**, the list of data logged for each vertex **29** and **35**, including differential correction quality, number of satellites tracked and HDOP, is analyzed and colors assigned to vertexes to indicate which vertexes have the highest confidence level for relative accuracy. For example, if the NMEA GGA data string were logged to the palm-held computer RAM for each vertex **29** and **35** of the green **27** then the GGA data set for the green **27** could be analyzed and colors assigned to each displayed vertex **29** and **35** based on its quality level within the data set. A black block could indicate good quality differential correction, maximum satellites used and a low horizontal dilution of precision (HDOP). A green block

could indicate good quality differential correction, a moderate number of satellites used and a moderate horizontal dilution of precision (HDOP). A yellow block could indicate good quality differential correction with moderate age or a moderate number of satellites used and a higher HDOP. A red block could indicate no differential correction or very old differential correction or a low number of satellites used or a high HDOP. A low number of satellites in some cases does not necessarily indicate a degraded location accuracy. However, ~~in~~ in a dynamic mapping application where foliage obstruction may block signals from the GPS satellites and cause the number of satellites in use to fluctuate or be substantially reduced, it is important to consider satellite number in deciding which vertex or vertexes to manipulate.

Paragraph beginning at page 27, line number 19

Another compatible aerial imaging method is to fly at a low altitude and collect multiple images along parallel paths across a golf course until the entire course is imaged. Each time the shutter of the camera is activated a ~~dGPS~~GPS location is logged. The image and location data is then processed in a GIS where it is mosaiced and automatically georectified as understood in the art. Course features are then traced as described above.

Paragraph beginning at page 32, line number 13

In addition, it is projected that position information gathered while mapping a course can be uploaded to the web site for differential post processing to improve on real-time dGPS-only map quality. The uploaded position data, corresponding satellite data from a nearby CORS reference station and post processing software may be used to fix vertexes or points that may have been recorded with old differential real-time data or no differential data.

Paragraph beginning at page 40, line number 17

Point

When "Point" is pressed the current location is logged. Immediately following this, the user is prompted for a note to ~~defend~~define the point.

Claim Mark-Ups:

1. A method of storing and communicating sets of topographic information to and from information processing and viewing devices by means of an accessible electronic network, each of the sets being specific to an individual golf course, comprising the steps of:

(a) inputting a first set of information to a first information processing and viewing device, said first set of information being data representative of a golf course topography, said first set of information including data elements relating to attributes of the golf course, said data elements including ~~at least one characterizing aspect and at least one location for each feature of~~ said attributes in the set and said first information processing and viewing device executing course-mapper software;

(b) transmitting said first set of information from the first information processing and viewing device to the network; and

(c) accessing said first set of information through said network with providing a second information processing and viewing device with autonomy from any positional equipment at the golf course, said second information processing and viewing device executing course-player software access to said first set of information.

2. The method of claim 1 wherein said inputting step further comprises the steps of:
receiving location data via an antenna connected to a position module;
connecting said position module to said first information processing and viewing device,
said first information processing and viewing device being operable to execute said course-
mapper software when said antenna is in a reception only modenetwork is the Internet.

3. The method of claim 1 wherein said inputting step further comprises the steps of:
selecting a label corresponding to one of said attributes from a set of labels corresponding
to said attributes of the golf course;
receiving location data from a position module;
determining a relative accuracy of said location data;
assigning said relative accuracy to said location data;
labeling said location data with said selected label to form one of said data elements;
indicating said relative accuracy by displaying said location data with a visual signifier;
repeating said selecting and assigning steps for a plurality of attributes of the golf course
to produce said first set of information; and
saving said first set of information as a map file for said golf course topographyat least
one of said first and second information processing and viewing devices is a portable hand held
personal computer.

6. The method of claim 1 including the additional steps of:

- (d) altering the set of information accessed from the network with said second device and with autonomy from any positional equipment at the golf course to produce a second set of information representative of the golf course topography;
- (e) transmitting said second set of information to the network; and
- (f) providing access to said altered set of information with autonomy from any positional equipment at the golf course.

7. The method of claim 6 wherein the altering of the first set of information increases the accuracy of the data correspondence to the golf course attributes to produce a second set of information which is more correctly representative of the golf course than the first set.

8. The method of claim 1 including the additional steps of:

- (d) inputting a second set of information to said second information processing and viewing device, said second set of information relating to at least one ball location as a result of playing the golf course by at least one individual;
- (e) displaying said first and second sets of information on said second information processing and viewing device, wherein said ball location is displayed as a moving representation with respect to said golf course topography; and
- (f) replaying said displaying step for said first and second sets of information in at least one alterable manner including an adjustable replay speed for said moving representation wherein said data elements include Global Positioning System data of varying degrees of accuracy, said degree of accuracy of the Global Positioning System data in said location data elements being indicated by varying depictions of the attributes in the viewing

~~devices, said varying depictions corresponding to their respective Global Positioning System data degrees of accuracy.~~

9. The method of claim 1 further comprising the step of entering a user application into said second information processing and viewing device, wherein said user application includes player software suited for an application selected from the group consisting of navigation, hiking, hunting, biking, farming, and golfing, wherein said player software displays a moving representation for said application in at least one alterable manner, including an adjustable replay speed for said application's moving representation wherein said data elements include Global Positioning System data with varying degrees of accuracy, and said altering of the first set data includes the utilization of differential Global Positioning System data to increase at least one of the first set location data elements degree of accuracy.

10. The method of claim 1 including the additional steps of:

(d) storing said first set of information in a publicly accessible database, said database further storing additional sets of information representative of a plurality of golf courses; and
(e) providing access over said network to the stored sets of information in the database with autonomy from any positional equipment at said plurality of golf courses.

11. The method of claim 10 wherein the stored sets of information accessed from the database are alterable with autonomy from any positional equipment at said plurality of golf courses following accessing.

12. The method of claim 10 wherein said database is accessible by ~~Internet~~ connection to a web site, said web site providing the information sets in a form accessible with a web browser.

13. A system of storing and communicating sets of topographic information to and from information processing and viewing devices by means of an accessible network, each of the sets being specific to an individual golf course, comprising:

(a) a first information processing and viewing device executing course-mapper software and receiving input of a first set of information, said first set of information being data representative of a golf course topography, said first set of information including data elements relating to attributes of the golf course, said data elements including at least one characterizing aspect and a location for each attribute in the set;

(b) a central information processing site and database receiving said set of information from said first information processing and viewing device and providing access to said set over the network; and

(c) a second information processing and viewing device receiving transmission of said first set of information from the first information processing device over the network and with autonomy from any positional equipment at the golf course.

14. The system of claim 13 wherein said first information processing and viewing device is operable for executing said course-mapper software with an antenna in a reception only mode and with autonomy from any positional equipment at the golf course ~~network is the Internet.~~

15. The system of claim 13 wherein at least one of said first and second information processing and viewing devices iscomprises:

a position module with an antenna receiving location data; and
a display module being in operable communication with said position module for
receiving said location data therefrom, said display module comprising a portable hand-held
personal computer and a viewer, wherein said portable computer executes said course-mapper
software, determines a relative accuracy of said location data, assigns said relative accuracy to
said location data, and causes said viewer to display said location data with said visual signifier
to indicate said relative accuracy.

18. The system of claim 13 including:

(d) altering with said second device and with autonomy from any positional
equipment at the golf course the set of information accessed from the public network to produce
a second set of information representative of the golf course topography; and

(e) transmitting said second set of information over the publicly accessible network
to the central information processing site and database, said central site then selectively
providing access to said altered set of information over the publicly accessible network with
autonomy from any positional equipment at the golf course.

19. The system of claim 18 wherein the altering of the first set of information increases the accuracy of the data correspondence to the golf course attributes to produce a second set of information which is more correctly representative of the golf course than the first set.

20. The system of claim 13 wherein a second set of information is received and processed by said second information processing and viewing device, said second set of information relating to at least one ball location as a result of playing the golf course by at least one individual, and wherein said second information processing and viewing device displays said ball location as a moving representation with respect to a display of said golf course topography, and wherein said second information processing and viewing device replays said ball location in at least one alterable manner including an adjustable replay speed for said moving representation¹⁹ wherein said data elements include Global Positioning System data of varying degrees of accuracy, said degree of accuracy of the Global Positioning System data in said location data elements being indicated by varying depictions of the attributes in the viewing devices, said varying depictions corresponding to their respective Global Positioning System data degrees of accuracy.

21. The system of claim 13 wherein a user application is entered into said second information processing and viewing device, said user application including player software suited for an application selected from the group consisting of navigation, hiking, hunting, biking, farming, and golfing, wherein said player software displays a moving representation for said application in at least one alterable manner, including an adjustable replay speed for said application's moving representation¹⁹ wherein said data elements include differentially corrected Global Positioning System data with varying degrees of accuracy, and said altering of the first set data includes the utilization of differential Global Positioning System data to increase at least one of the first set location data elements degree of accuracy.

22. The system of claim 13 wherein said central site and database further contain additional sets of information representative of a plurality of golf courses; and provides access over said network to the additional sets of golf courses information in the database with autonomy from any positional equipment at said plurality of golf courses.

23. The system of claim 22 wherein the stored sets of information accessed from the database are alterable with autonomy from any positional equipment at said plurality of golf courses following accessing.

24. The system of claim 22 wherein said database is accessible by Internet connection to a web site, said web site providing the information sets in a form accessible with a web browser.

25. A portable information processing and viewing device for storing and communicating topographic information comprising:

 a portable information processing and viewing device, said device having an information processor for the storage, retrieval and processing of a map data file including which encoded position information, said device also having a viewer for the display of said position information encoded in the data, said device further having data inputs, said data inputs including at least one of a user interface and direct electrical connections;

 said position information, encoded in the data, including information location data and a corresponding data label relating to at least one topographic characteristic of at least one selected geographic region, said map data file also including relative accuracy data corresponding with said location data geographic regions including those having at least a portion of a golf course,

said characteristic being represented on said viewer by visual signifiers, said visual signifiers including at least a representation of an attribute and an indication of a position of said topographic characteristic, wherein said indication of said position by said visual signifiers further includes an indication by said visual signifiers of said relative accuracy data corresponding with said location data; and

 said direct electrical connections adapted for connection with at least one cooperative device for enabling said information processing and viewing device to perform an operation of at least one of generating, accessing, storing and communicating of said map data file, wherein said cooperative device further enables said information processing and viewing device to autonomously process and display said position information relating to topographic characteristics.

28. The information processing and viewing device according to claim 25 wherein said cooperative device is a position module having an antenna for enabling said information processing and viewing device to modify said location data, and wherein said information processing and viewing device is operable to at least store, retrieve and process said modified location data with an antenna in a reception only mode at least a first data set that encodes information relating to topographic characteristics of at least a first selected geographic region.

29. The information processing and viewing device according to claim 25 wherein said user generated data set that encodes information relating to topographic characteristics location data is generated with a position module by attaching said position module as said cooperative device, said data label corresponding to said location data is generated with said user interface by

selecting a label from a set of labels corresponding to a set of attributes for said geographic region, and said relative accuracy data is assigned to said location data by said processor, and wherein said location data is comprised of latitude and longitude for said position of said topographic characteristic, said data label is comprised of said selected label for said topographic characteristic, and said relative accuracy data is comprised of a quality value determined for said location data.

30. The information processing and viewing device according to claim 29, wherein said geographic region includes a golf course and said position information relates to a plurality of attributes of said golf course, and wherein said information processing and viewing device retrieves said map data file autonomously from any positional equipment at said golf course.

31. The information processing and viewing device according to claim 25 wherein said cooperative device is a position module for enabling said information processing and viewing device to modify said location data, wherein said position module receives said location data, said processor assigns said relative accuracy data to said location data, said viewer indicates with said visual signifiers a quality value of said location data; and said location data is altered with said user interface at least a first data set that encodes information relating to topographic characteristics of at least a first selected geographic region.

32. The information processing and viewing device according to claim 31, wherein said geographic region includes a golf course and said position information relates to a plurality of

attributes of said golf course, and wherein said information processing and viewing device retrieves said map data file autonomously from any positional equipment at said golf course.

33. The information processing and viewing device according to claim 25 wherein said cooperative device is a detachable position module which enables the information processing and viewing device to store said map data file at least a first user interface entered data set that encodes information relating to topographic characteristics of at least a first said selected geographic region; and

wherein said detachable position module and said stored first user interface entered map data file are set is transferable to a second information processing and viewing device for enabling said second information processing and viewing device to access said map data file first user interface entered data set, and wherein said second information processing and viewing device receives, processes and displays additional location data relating to said geographic region, said additional location data for said geographic region being displayed as a moving representation with respect to a display of said map data file for said geographic region, wherein said second information processing and viewing device replays said moving representation in at least one alterable manner, including an adjustable replay speed for said moving representation.

34. The information processing and viewing device according to claim 25 wherein said cooperative device is a data link.

35. The information processing and viewing device according to claim 34 wherein said data link is a connection to a personal computer for the communication of data between said information processing and viewing device and said computer.

36. The information processing and viewing device according to claim 34 wherein said data link is a connection to a network for the communication of data between said information processing and viewing device and said network.

37. The information processing and viewing device according to claim 36 wherein said network is a private access network.

38. The information processing and viewing device according to claim 36 wherein said network is a publicly accessible network such as the internet.

39. The information processing and viewing device according to claim 36 wherein said network provides said information processing and viewing device access to an additional map data fileset that encodes information relating to topographic characteristics.

40. The information processing and viewing device according to claim 36 wherein said network provides said information processing and viewing device storage of said ~~user~~ generated map data fileset that encodes information relating to topographic characteristics.

41. The information processing and viewing device according to claim 36 wherein said network provides said information processing and viewing device access to an archived map data fileset that encodes information relating to topographic characteristics, said archived map data fileset being modifiable by said information processing and viewing device following access; and

 said network further providing said information processing and viewing device storage of said modified archived map data fileset.

46. The information processing and viewing device according to claim 4325 wherein said position information relates to a plurality of attributes of a golf course and related aspect is modifiable by said information processing and viewing device, wherein said information processing and viewing device retrieves said map data file autonomously from any positional equipment at said golf course and generates a round data file autonomously from any positional equipment at said golf course, said round data file including ball location data.

47. The information processing and viewing device according to claim 4446 wherein said position information related aspect is modified by the with said user interface to increase the degree of positional said relative accuracy data of said modified position information related aspect.

48. The information processing and viewing device according to claim 46 wherein said modified position information and said round data file are including modified position related aspects is storable in the information processing and viewing device.

49. The information processing and viewing device according to claim 46 wherein said modified position information and round data file are including modified position related aspects is communicable with a data link cooperative device over a network.

60. A portable information processing and viewing device for storing and communicating topographic information comprising:

a portable information processing and viewing device, said device having an information processor for the storage, retrieval and processing of data which encodes information, said device also having a viewer for the display of information encoded in the data, said device further having data inputs, said data inputs including at least one of a user interface and direct electrical connections;

said information, encoded in the data, includes information relating to at least one topographic characteristic of at least one selected geographic region, said topographic characteristic being represented on said viewer by visual signifiers, said visual signifiers including at least a representation of an attribute and an indication of a position of said topographic characteristic;

said direct electrical connections adapted for connection with at least one cooperative device for enabling said information processing and viewing device to perform an operation of at least one of generating, accessing, storing and communicating of said data, wherein said cooperative device further enables said information processing and viewing device to autonomously process and display said information relating to topographic characteristics; and

wherein said geographic region includes a golf course, said golf course represented on said viewer by at least a partial display of a selected hole of said golf course; and

wherein additional information relating to playing said golf course is displayed as a moving representation with respect to said partial display of said golf course, said moving representation being displayable in alterable manners, said alterable manners including the rate of progression of said representation.

61. The information processing and viewing device according to claim 60 wherein a location on said golf course is communicated via said direct electrical connections~~representation may be chosen or indicated when enabled~~ by attaching a position module as said cooperative device, and wherein said information processing and viewing device displays the topographic characteristics of said location.

62. The information processing and viewing device according to claim 61 wherein the display of the topographic characteristics of said location includes an indication of a position of said location and a corresponding representation of an attribute at said location, wherein said information relating to said topographic characteristic is comprised of location data and a data label corresponding with said location data, and wherein said location data is comprised of latitude and longitude for said position of said topographic characteristic and said data label is comprised of a label for said attribute of said topographic characteristic, said label being selected from a set of labels corresponding with a set of attributes for said geographic region.

63. The information processing and viewing device according to claim 6162, wherein said information relating to said topographic characteristic is further comprised of relative accuracy data corresponding with said location data, said relative accuracy data being comprised of a quality value determined for said location data, wherein the display of the topographic characteristics of said location includes an indication of said quality value a position of said location data.

64. The information processing and viewing device according to claim 6163 wherein the display of said information of playing said golf course the topographic characteristics of said location further includes information relating to the playing of a golf shot from said location.

65. The information processing and viewing device according to claim 6162 wherein said information relating to said topographic characteristic includes elevation information, and wherein a difference-of-elevation is processed and displayed on said viewer in response to a selection of two locations a compilation of said information relating to the playing of a plurality of golf shots from a plurality of said locations is accessible with said cooperative device.

66. The information processing and viewing device according to claim 6560 wherein said cooperative device is a position module with an antenna for receiving a location on said golf course, and wherein said information processing and viewing device is operable to at least store, retrieve and process said information relating to said topographic characteristic with said antenna in a reception only mode providing differentially corrected Global Position System location information.

67. The information processing and viewing device according to claim 6560 wherein said cooperative device is a data link to a second information processing device, said second information processing and viewing device including player software suited for an application selected from the group consisting of navigation, hiking, hunting, biking, farming, and golfing, wherein said player software displays a moving representation for said application in at least one alterable manner including the rate of progression of said application's moving representation.

68. The information processing and viewing device according to claim 6560 wherein said cooperative device is a data link to a ~~network providing access to said compilation~~.

69. The information processing and viewing device according to claim 6560 wherein said compilation is modifiable by an addition of information relating to the playing of at least one golf shot from at least one of said locations, said addition of information being provided by said information processing and viewing device includes player software suited for an application selected from the group consisting of navigation, hiking, hunting, biking, farming, and golfing, wherein said player software displays a moving representation for said application in at least one alterable manner including the rate of progression of said application's moving representation.

72. A portable information processing and viewing device for storing and communicating topographic information comprising:

 a portable information processing and viewing device, said device having an information processor for the storage, retrieval and processing of a data set which encodes information, said

device also having a viewer for the display of information encoded in the said data set, said device further having data inputs, said data inputs including at least one of a user interface and direct electrical connections;

said information, encoded in the data set comprising at least one corresponding set of location information, a data label and relative accuracy data, said location information and said data label relating to at least one topographic characteristic of at least one selected geographic region and said relative accuracy data relating to a quality value for said corresponding location information, said geographic regions including at least one golf course, said characteristic being represented on said viewer by visual signifiers, said visual signifiers including at least a representation of an attribute and an indication of a position of said topographic characteristic, wherein said indication of said position by said visual signifiers includes an indication of said relative accuracy of said location information, and wherein said location information is comprised of latitude and longitude for said position of said topographic characteristic and said data label is comprised of a label for said attribute of said topographic characteristic, said label being selected from a set of labels corresponding with a set of attributes for said geographic region;

said direct electrical connections adapted for connection with at least one cooperative device for enabling said information processing and viewing device to perform an operation of at least one of generating, accessing, storing and communicating of said data set, said cooperative device further enabling said information processing and viewing device to autonomously process and display said information relating to topographic characteristics;

wherein said cooperative device is a detachable position module for providing differentially corrected Global Position System generating said location information which is

used to create at least a first, said user interface receives said selected label, and said processor assigns said relative accuracy data to said location data, and said information processor calculates said quality value and assigns said relative accuracy data to said corresponding location information, wherein said detachable position module has an antenna for receiving position related information and wherein said information processing and viewing device is operable to at least store, retrieve and process said data set with said antenna in a reception only mode~~entered~~ data set that encodes information relating to topographic characteristics of at least a first selected geographic region; and

wherein said detachable position module and said stored first user interface entered data set ~~are~~ is transferable to a second information processing and viewing device, and wherein said second information processing and viewing device receives, processes and displays additional location information relating to playing said golf course, said additional location information for playing said golf course being displayed as a moving representation with respect to a display of said data set for said golf course, wherein said second information processing and viewing device replays said moving representation in at least one alterable manner, including an adjustable replay speed for said moving representation~~for enabling said second information processing and viewing device to access said first user interface entered data set.~~

73. A portable information processing and viewing device for storing and communicating topographic information comprising:

a portable information processing and viewing device, said device having an information processor for the storage, retrieval and processing of data which encodes information, said device also having a viewer for the display of information encoded in the data, said device

further having data inputs, said data inputs including at least one of a user interface and direct electrical connections;

 said information, encoded in the data, relating to at least one topographic characteristic of at least one selected geographic region, said geographic regions including at least one golf course, said characteristic being represented on said viewer by visual signifiers, said visual signifiers including at least a representation of an attribute and an indication of a position of said topographic characteristic;

 said direct electrical connections adapted for connection with at least one cooperative device for enabling said information processing and viewing device to perform an operation of at least one of accessing, storing and communicating of said data, said cooperative device further enabling said information processing and viewing device to autonomously process and display said information relating to topographic characteristics;

 wherein at least one of said cooperative devices is a position module having an antenna for receiving position related information and wherein said information processing and viewing device is fully operable with said antenna in a reception only mode.

75. The information processing and viewing device according to claim 73 wherein said information relating to said topographic characteristic is comprised of location data and a data label corresponding with said location data, said location data and said data label being stored in a map data file, and wherein said location data is comprised of latitude and longitude for said position of said topographic characteristic and said data label is comprised of a label for said attribute of said topographic characteristic, said label being selected from a set of labels

corresponding with a set of attributes for said geographic region~~position module receives differential correction information for correcting Global Positioning Satellite information.~~

76. The information processing and viewing device according to claim 7375 wherein said information relating to said topographic characteristic is further comprised of relative accuracy data corresponding with said location data, said relative accuracy data being comprised of a quality value determined for said location data, wherein the display of the topographic characteristics of said location includes an indication of said quality value of said location
~~data~~position module receives Global Positioning Satellite information and differential correction information for correcting Global Positioning Satellite information.

78. The information processing and viewing device according to claim 7375 wherein said position module receives Global Positioning Satellite information relating to locations on said golf course and differential correction information for correcting said Global Positioning Satellite information, and a second cooperative device is a data link for providing communication of said map file~~the Global Positioning Satellite derived location information to a second information processing device autonomously from any positional equipment at said golf course.~~

79. The information processing and viewing device according to claim 7375 wherein said position module receives Global Positioning Satellite information relating to locations on said golf course and differential correction information for correcting said Global Positioning Satellite information, and a second cooperative device is a data link for providing

communication of said map file the Global Positioning Satellite derived location information over a network autonomously from any positional equipment at said golf course.

80. The information processing and viewing device according to claim 7375 wherein said one cooperative device is a position module also communicates ball location data over said direct electrical connections, said information processor generates a round data file with said ball location data, and said viewer displays said round data file for said ball location as a moving representation with respect to said map data file for said golf course, and wherein said information processing and viewing device replays said moving representation in at least one alterable manner including an adjustable replay speed for said moving representation that receives Global Positioning Satellite information relating to locations on said golf course and differential correction information for correcting said Global Positioning Satellite information;
~~— wherein said information relating to locations includes information relating to a relative height of said location and a means to display the same to the user.~~

81. The information processing and viewing device according to claim 7380 wherein said information processing and viewing device includes player software suited for an application selected from the group consisting of navigation, hiking, hunting, biking, farming, and golfing, wherein said player software displays a moving representation for said application in at least one alterable manner, including an adjustable replay speed for said application's moving representation ~~one cooperative device is an position module that receives Global Positioning Satellite information relating to locations on said golf course and differential correction information for correcting said Global Positioning Satellite information; and~~

~~a second cooperative device is a means for accessing a stored set of information relating to locations on said golf course, wherein said device utilizes said Global Positioning Satellite and said differential correction information to increase a degree of accuracy of said stored set of information.~~

82. The information processing and viewing device according to claim 81-73 wherein said one cooperative device is a position module that receives Global Positioning Satellite information relating to locations on said golf course and differential correction information for correcting said Global Positioning Satellite information;

wherein said information relating to locations includes information relating to a relative height of said location and a means to display the same to the user;

a second cooperative device is a means for accessing a stored set of information relating to locations on said golf course, wherein said second cooperating device utilizes said Global Positioning Satellite and said differential correction information to increase a degree of accuracy of said stored set of information; and

wherein said increase in the degree of accuracy of said stored set of information includes an increase in the degree of accuracy of a relative height of said location.

87. A method of storing and displaying communicating sets of topographic information to and from information processing and viewing devices by means of an accessible electronic network, each of the sets being specific to an individual golf course, comprising the steps of:

(a) inputting a first set of information to a first portable information processing and viewing device, said first set of information being data representative of a golf course

topography, said first set of information including data elements relating to attributes of the golf course ~~and~~ said topography, said data elements including at least one characterizing aspect and at least one location for each feature in the set of said attributes;

(b) inputting a second set of said information data to said portable information processing and viewing device, said second set of information relating to the playing of a golf ball wherein said information data elements include location data for traversing said topography each golf ball lie;

(c) displaying transmitting said first and second sets of information on said portable information processing and viewing device, wherein said location data for traversing said topography is displayed as a moving representation with respect to said topography from the first information processing and viewing device to the network; and

(d) replaying said displaying step for providing a second information processing and viewing device access to said first and second sets of information in at least one alterable manner including an adjustable replay speed for said moving representation.

88. The method of claim 87, further comprising the step of receiving said location data for traversing said topography via an antenna operable in a reception only mode4 wherein said location data elements include Global Positioning System data.

89. The method of claim 87, further comprising the steps of assigning at least one location-quality identifier to said data elements in said first set of information and assigning a visual signifier according to said location-quality identifier, wherein said visual signifier identifies a

relative accuracy of said data elements in said displaying step⁴ wherein said location data elements include differentially corrected Global Positioning System data.

90. A method of storing and displaying ~~communicating~~ sets of topographic information to and from ~~information processing and viewing devices by means of an accessible electronic network~~, each of the sets being specific to an individual golf course, comprising the steps of:

- (a) inputting a first set of information to a first ~~portable~~ information processing and viewing device, said first set of information being data representative of a golf course topography, said first set of information including data elements relating to attributes of the golf course, said data elements including ~~at least one characterizing aspect and at least one location for each feature in the set of said golf course attributes~~;
- (b) inputting a second set of information ~~data to said portable information processing and viewing device, said second~~ set of information ~~data~~ relating to at least one ball location as a result of playing the golf course by at least one individual;
- (c) displaying ~~transmitting~~ said first and second sets of information on ~~said portable information processing and viewing device, wherein said ball location is displayed as a moving representation with respect to said golf course topography from the first information processing and viewing device to the network~~; and
- (d) replaying ~~said displaying step for providing a second information processing and viewing device access to said first and second sets of information in at least one alterable manner including an adjustable replay speed for said moving representation~~.

91. The method of claim 90, further comprising the step of receiving said second set of information relating to at least one ball location via an antenna operable in a reception only mode1 wherein said location data elements include Global Positioning System data.

92. The method of claim 90, further comprising the steps of assigning at least one location-quality identifier to said data elements in said first set of information and assigning a visual signifier according to said location-quality identifier, wherein said visual signifier identifies a relative accuracy of said data elements in said displaying step1 wherein said location data elements include differentially corrected Global Positioning System data.

95. The method of claim 590 wherein said golf course topography includes processing and displaying difference-of-elevation information between any two points on the golf course as selected on said portable processing and viewing device~~location data elements include Global Positioning System data.~~

96. The method of claim 595 wherein said difference-of-elevation is interpolated from~~location data elements include differentially corrected Global Positioning System data and a georeferenced elevation dataset.~~

97. A system of storing and communicating sets of topographic information to and from information processing and viewing devices by means of an accessible network, ~~each of the sets being specific to an individual golf course~~, comprising:

(a) a first information processing and viewing device receiving input of a first set of information, said first set of information being data representative of a ~~golf course-topography~~, said first set of information including data elements relating to attributes of the ~~golf courses~~said topography, said data elements including at least one characterizing aspect and a location for each attribute in the set;

(b) a second set of ~~said information data~~ relating to the playing of a ~~golf ball~~ wherein ~~said information data elements include~~ location data for traversing said topography each ~~golf ball~~ lies;

(c) a central information processing site and database receiving said first and second sets of information from said first information processing and viewing device and providing access to said sets over the network; and

(d) a second information processing and viewing device receiving transmission of said first and second sets of information, ~~from the first information processing device over the network~~displaying said location data for traversing said topography as a moving representation with respect to said topography, and replaying said moving representation in at least one alterable manner including an adjustable replay speed for said moving representation.

98. The system of claim 97 wherein said topography is a course and said location data for traversing said course relates to a round on said course including adding location data elements including Global Positioning System data.

99. The system of claim 97 wherein said topography is a golf course and said location data for traversing said golf course relates to the playing of a golf ball on said golf course including adding location data elements including differentially corrected Global Positioning System data.

100. A system of storing and communicating sets of topographic information to and from information processing and viewing devices by means of an accessible network, each of the sets being specific to an individual golf course, comprising:

- (a) a first information processing and viewing device receiving input of a first set of information, said first set of information being data representative of a golf course topography, said first set of information including data elements relating to attributes of the golf course, said data elements including at least one ~~characterizing aspect and a location~~ for each attribute in the set;
- (b) a second set of ~~said information data~~ relating to at least one ball location as a result of playing the golf course by at least one individual;
- (c) a central information processing site and database receiving said first and second sets of information from said first information processing and viewing device and providing access to said sets over the network; and
- (d) a second information processing and viewing device receiving transmission of said first and second sets of information, ~~from the first information processing device over the network displaying the playing of the golf course as a moving representation with respect to said golf course topography, and replaying said moving representation in at least one alterable manner including an adjustable replay speed for said moving representation.~~

101. The system of claim 100 wherein a user application is entered into said first information processing and viewing device, said user application including player software suited for an application selected from the group consisting of navigation, hiking, hunting, biking, farming, and golfing, wherein said player software displays a moving representation for said application in at least one alterable manner, including an adjustable replay speed for said application's moving representation including adding location data elements including Global Positioning System data.

102. The system of claim 100 wherein a user application is entered into said second information processing and viewing device, said user application including player software suited for an application selected from the group consisting of navigation, hiking, hunting, biking, farming, and golfing, wherein said player software displays a moving representation for said application in at least one alterable manner, including an adjustable replay speed for said application's moving representation including adding location data elements including differentially corrected Global Positioning System data.

105. The system of claim 100 wherein said first information processing and viewing device comprises:

a position module with an antenna receiving location data; and
a display module being in operable communication with said position module for receiving said first set of information, said display module comprising a portable hand-held personal computer and a viewer, wherein said portable computer determines a relative accuracy of each said location in said data elements, assigns said relative accuracy to said location data,

and causes said viewer to display said location with said visual signifier to indicate said relative accuracy~~said data relating to at least one ball location is Global Positioning System data.~~

106. The system of claim 100 wherein said first information processing and viewing device comprises a position module with an antenna, said information processing and viewing device generating at least one of said first and second sets of information with said antenna in a reception only mode~~data relating to at least one ball location is differentially corrected Global Positioning System data.~~

107. The information processing and viewing device according to claim ~~7375~~ wherein said location data further comprises elevation for said position of said topographic characteristic, and wherein a difference-of-elevation is processed and displayed on said viewer in response to a selection of two locations~~position module comprises an antenna.~~

108. The information processing and viewing device according to claim ~~8082~~ wherein the relative height of said location displayed to the user changes dynamically with respect to a target location selected as the information processing and viewing device receive input from the user.